

**Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554**

In the Matter of)	
)	
Commission Seeks)	ET Docket No. 03-126
Public Comment on)	
Working Paper Regarding)	
Unlicensed Devices)	

COMMENTS OF ITRON, INC.

Itron, Inc. ("Itron"), by its attorneys, hereby submits these comments in response to the Public Notice seeking comment on the Office of Engineering and Technology and the Office of Strategic Planning and Policy Joint Staff Paper Regarding Unlicensed Devices and Associated Regulatory Issues (the "Working Paper").¹ As detailed below, Itron supports rules of etiquette for unlicensed bands, and, in particular, adoption of duty cycle limitations, to foster the continued productive use of unlicensed spectrum.

I. Introduction and Background

Itron is the nation's leading manufacturer and supplier of automatic meter reading ("AMR") technologies using unlicensed Part 15 devices that operate in the 902-928 MHz band. Itron supplies its RF-based AMR systems to electric, gas, and water utility companies nationwide. Itron's AMR systems enable a utility to monitor business and residential meters from a remote location² using a hybrid architecture that employs both licensed and unlicensed frequencies. Itron has

¹ *Office of Engineering and Technology and the Office of Strategic Planning and Policy Analysis Release Joint Staff Paper Regarding Unlicensed Devices and Associated Regulatory Issues*, Public Notice, ET Docket No. 03-126, DA 03-1758 (rel. May 21, 2003).

² See, e.g., Working Paper at 3.

provided more than 20 million meter modules to more than 850 utility companies nationwide, and Itron customers have invested over \$1 billion in their AMR networks. Itron's customers use these networks to provide the public at large with services that the Commission has described as "essential."³

Itron applauds the Working Paper's recognition that "[u]nlicensed devices . . . advance the public interest, necessity , and convenience"⁴ and supports the Commission's continued efforts to ensure that the "benefits and promise of unlicensed devices" do not go "unrealized."⁵

II. The Commission Should Recognize the Importance and Consumer Benefits of Automatic Meter Reading Devices.

AMR devices are a boon to utilities and their customers. By eliminating the need for utility workers to physically access meters in order to read them, AMR devices increase efficiency and decrease utility costs, provide customers with actual rather than estimated readings, and prevent unnecessary intrusions on customer privacy. Advances in AMR technology allow utilities to generate, gather, and employ additional data that enables utilities to optimize the use and delivery of energy and water. Thus, AMR systems benefit both utilities and consumers by providing knowledge that can be used to drive down utility costs, increase convenience, and improve efficiency. Not surprisingly, given these benefits, the AMR industry has enjoyed remarkable and continuing growth. There are approximately 32.6 million AMR units currently in operation, with 7.9

³ See *Implementation of Sections 309(j) and 337 of the Communications Act of 1934 as Amended; Promotion of Spectrum Efficient Technologies on Certain Part 90 Frequencies; Establishment of Public Service Radio Pool in the Private Mobile Frequencies Below 800 MHz; Petition for Rule Making of the American Mobile Telecommunications Association*, Report and Order and Further Notice of Proposed Rule Making, WT Docket No. 99-87, 15 FCC Rcd 22709, 22711-12 (2000).

⁴ Working Paper at iv.

⁵ *Id.* at 50.

million of those units shipped in 2002 alone. Shipments are expected to increase by 15% to 20% over the next five years.

In light of the benefits of AMR devices, the Working Paper's brief treatment of them is disappointing. As the Commission moves forward with its efforts to improve spectrum efficiency, it should remain mindful of the wide-ranging benefits of AMR devices and ensure that regulatory conditions do not hamper the continued growth of the AMR industry.

The crucial importance of AMR systems was dramatically illustrated by the recent blackout affecting parts of the United States and Canada. Advanced AMR systems could have helped prevent or moderate the blackout by enabling utilities to better manage their existing infrastructure and encourage off-peak energy use, reducing the load on high voltage lines. Such systems can also help prevent future blackouts by allowing utilities to better understand their loads and identify necessary infrastructure improvements.

III. Itron Supports Rules of Etiquette for Unlicensed Bands.

The Working Paper correctly recognizes that one strategy for increasing spectral efficiency is "modif[ication] of current service rules,"⁶ including "spectrum sharing etiquette" that would "ensure equitable access to spectrum."⁷ Absent measures that ensure continued stability for unlicensed users, there is a profound risk that unlicensed spectrum bands will become increasingly congested and volatile. Such changes carry very real consequences of decreased investment and innovation.

At minimum, the risk that RF conditions will degrade over time creates uncertainty that existing equipment will continue to be usable and thus

⁶ *Id.* at 45.

⁷ *Id.* at 49.

discourages production of reliable products. Without continued availability of existing unlicensed spectrum, manufacturers have little incentive to produce devices with projected lives of anything more than a few years. AMR devices, however, which require substantial investment, can have useful lives of decades or more. Supporting the continued effectiveness of AMR systems by providing stability for unlicensed spectrum, as a result, is in the best interests of utilities and their customers.

Increased volatility also can force manufacturers to harden receivers operating in the unlicensed bands. Receiver hardening inevitably drives up receiver manufacturing costs, forcing cost-sensitive solutions out of unlicensed bands. One of unlicensed spectrum's chief virtues, however, has been its availability to cost-sensitive operations. Indeed, the White Paper expressly endorses "retain[ing] the low entry barriers that have proven so successful for unlicensed spectrum."⁸ In order to meet this goal, the Commission must take steps to preserve current conditions in unlicensed spectrum bands.

Finally, volatile RF environments may force manufacturers to incorporate redundancies that would otherwise be unnecessary. Such redundancies, in addition to imposing costs that are inconsistent with low entry barriers, can impair the overall efficiency of unlicensed bands.

In short, absent reasonable ground rules and effective enforcement of those rules, the "unprecedented growth"⁹ of unlicensed devices will founder. At worst, the dramatic success of the unlicensed bands will become, instead, a tragedy of the commons, with the resource of unlicensed spectrum effectively unusable by all.

⁸ *Id.* at iv.

⁹ *Id.*

In order for there to be a predictable interference environment that encourages investment and innovation, it is not sufficient for the Commission merely to adopt spectrum sharing etiquette rules. Rather, the Commission must, following adoption, refrain from altering the rules in a manner that undercuts investments parties have made in reliance on the rules. Materially altering spectrum etiquette requirements will destroy the stability that the requirements are intended to provide.

Itron is concerned that recent proposals involving the 902-928 MHz band would violate these principles. Based on these concerns, Itron has opposed the proposals, which were made by two location and monitoring service (“LMS”) licensees, Progeny LLS, LLC and Warren C. Havens.¹⁰ The proposals would radically reshape the Commission’s spectrum etiquette rules governing sharing in the 902-928 MHz band, rules that strike a careful balance among the needs of a variety of diverse users, including LMS licensees and Part 15 users. These well-crafted rules have led to considerable investment in unlicensed Part 15 devices operating in the 902-928 MHz band, and the Commission should maintain them to foster continued investment and innovation.

IV. The Commission Should Improve Access to Unlicensed Spectrum by Incorporating Duty Cycle Limits.

In order to preserve and build on the current success of unlicensed spectrum, Itron supports inclusion of time dimension requirements in unlicensed spectrum rules as suggested by the Spectrum Policy Task Force (“SPTF”).¹¹ Specifically, Itron endorses blending time dimension limits and the interference temperature concept by incorporating and enforcing duty cycle limitations in the unlicensed bands. Such an approach would capture many of the benefits of the

¹⁰ See, e.g., Comments of Itron, Inc., ET Docket No. 02-135 (filed Jan. 10, 2002); Comments of Itron, Inc. on Progeny White Paper, RM-10403 (filed Jan. 10, 2003).

¹¹ See Working Paper at 10.

interference temperature concept, which has also been endorsed by the SPTF.¹² Moreover, adopting duty cycle limits would enable the Commission to side-step the troubling problems of quantifying the current interference environment and setting units of measurement and other parameters for interference temperature. Because the benefits and drawbacks of incorporating interference temperature are highly dependent on its units of measurement, the Commission should not adopt the interference temperature concept until it has been fully and carefully defined and there has been an opportunity for public comment on its final form. Such a result would be consistent with the numerous comments filed in the SPTF proceeding noting difficulties and risks associated with the interference temperature concept.

Although the Working Paper did not make this clear, incorporating duty cycle limits would facilitate measurement of interference temperature once that concept is fully defined and adopted. In the interim, rather than relying on interference temperature to improve access to unlicensed spectrum, the Commission should create greater opportunities for access to unlicensed spectrum by incorporating duty cycle limits into its rules governing unlicensed spectrum.

Specifically, Itron suggests that the Commission require duty cycles that are inversely proportional to output power strength. By tying two central dimensions of spectrum use together, such requirements would encourage efficient use of spectrum. Unlicensed users that require high output power would be forced to compensate by reducing duty cycles, while low power users would have the opportunity to transmit for longer periods. Further, by allowing users the discretion to balance their duty cycle and output power needs, this

¹² See *id.*

regulatory approach would give unlicensed users substantial flexibility in structuring their operations.

Finally, incorporating duty cycle requirements into the rules governing unlicensed bands will increase opportunities for harmonization of unlicensed bands with other jurisdictions that have already adopted duty cycle limits for unlicensed spectrum.

Respectfully submitted,

ITRON, INC.

/s/ Joseph A. Godles

Joseph A. Godles
Brita Dagmar Strandberg

GOLDBERG, GODLES, WIENER &
WRIGHT
1229 Nineteenth Street, NW
Washington, DC 20036
(202) 429-4900
Its Attorneys

August 21, 2003